

# City of Detroit

## CITY COUNCIL

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TO: CITY COUNCIL MEMBERS

FROM: Irvin Corley, Jr., Director *ICJ*  
Anne Marie Langan, Deputy Director *AML*

DATE: July 1, 2009

RE: Fare card system and Fare box handling at DDOT

During the Public Health and Safety Standing Committee Meeting on Monday May 4, 2009, Councilmember Watson during the acceptance of the DDOT reports required by ordinance 58-4-7, requested that Fiscal and RAD do an analysis of fare cards used in other cities' transportation systems and if there is an ability to eliminate cash to eliminate lost funds.

What we learned is that in 2006 DDOT bought and installed a new fare box system for about \$8 million. This was to replace a fare box system that had existed since 1991 and in 1999 was deemed antiquated. The new fare box system has magnetic card readers and coin-and-currency validation mechanisms, which can note counterfeit as well as Canadian funds and reject them if programmed to do so. We were told that the estimate for the People Mover to switch to this system would be around \$5 million. While Transit Windsor, who runs the Tunnel Bus, is not part of the regional pass, they and DDOT have an agreement that permits each systems riders to get a transfer to the other system at no additional cost.

Since DDOT now has the magnetic card reader capability, riders are able to purchase from Neighborhood City Halls or CVS either a "regional pass" or a "store value card". DDOT Accounting and Money handler staff is responsible for getting the cards to these sites for purchase. These cards can be swiped at the fare box in lieu of cash. The regional pass is a monthly pass for \$49.50 that can be used for unlimited rides on either DDOT or SMART busses. DDOT and SMART split the revenue from these sales. The "store value" card is just for DDOT can be purchased in a set amount of \$10 and each board on a bus deducts a fare. Once a card is depleted, it is disposable, as DDOT does not have the funds to support vending machines for patrons to add money to the card. Cash and coin are still used, but as the system is updated it is giving better financial data for reconciliations and allowing the cash to be processed quicker.

What is now being incorporated in this next generation of fare box technology is the contactless fare collection system, which would accept third-party credit and debit cards. So, Visa and others would be wiring cash straight to the transportation system on a regular basis with no needed money handling. Los Angeles is also incorporating a Visa prepaid contactless payment card (like a gift card) to reach the riders who do not yet participate in the banking system at a level that would give them access to credit or debit cards. The card can also be used in other retail situations as well. The Utah Transit Authority just launched the contactless system in January 2009. New York is coordinating with the neighboring systems to include this new technology along with the existing store value cards and regional passes. Philadelphia and Tucson are planning to move in this direction as well.

Attached is a copy of the performance audit that the Auditor General did in 1999 on DDOT's fare box receipts handling process. There were four serious findings that DDOT never responded to. Council may want to request that DDOT provide written responses to explain how this process has improved in the last 10 years.

Also, DDOT has a contract with Transportation Systems, Contract No. 2624964. One of the original tasks was to review innovative technologies to collect fares. Council may want to request a copy of that report and if that work is what set them on course to purchase the system in 2006.

This same contract with Transportation Systems has also had change orders. Council may want to request the outcome of the task on developing fare models and assess alternative fare policies. This contractor could also provide to Council any benchmarking data that has been compiled with respect to fare modeling, collection systems and money counting/fare reconciliations.

Because of the funds that DDOT will be receiving from the American Recovery and Reinvestment Act (ARRA), the Auditor General is currently at DDOT monitoring the financial records and transactions for this project. They will be watching that the City complies with ARRA guidelines and the ARRA timelines. Once this issue is running smoothly, that might be the time to determine if the Auditor General could audit the money handling system as an update to the 1999 audit and see if the findings are still valid or if there are other issues.

#### Attachments

cc: Council Divisions  
Auditor General  
Lovette Williams, DDOT Director  
Norman White, Finance Director  
Kamau Marable, Mayor's Office

**Detroit Department of Transportation  
Farebox Receipts Handling Process**

**Performance Audit**

**July 1999**

JOSEPH L. HARRIS, CPA, CIA  
AUDITOR GENERAL  
CITY OF DETROIT

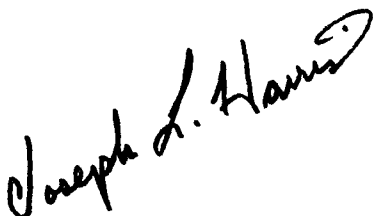
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## MEMORANDUM

**DATE:** July 30, 1999

**TO:** Mayor Dennis Archer  
Honorable City Council

**FROM:** Joseph L. Harris, CPA, CIA  
Auditor General 

**RE:** Performance Audit of the Farebox Receipts Handling Process of the Detroit Department of Transportation

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Attached for your review is our report on the farebox receipts handling process of the Detroit Department of Transportation (DDOT). This performance audit focused on the handling process in the DDOT Money Room.

The audit was initiated by the Office of the Auditor General to assess the reasonableness of adding ten Money Handler positions to the DDOT, as requested for the 1998-1999 fiscal year.

This report contains an executive summary; audit objectives, scope, and methodology; background; a description of DDOT's processing of farebox receipts; a discussion of practices used by other cities; and our findings and recommendations.

A copy of the report has been provided to the Detroit Department of Transportation.

We appreciate the cooperation and assistance received from the employees of the Detroit Department of Transportation.

**Detroit Department of Transportation  
Farebox Receipts Handling Process  
July 1999**

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## **EXECUTIVE SUMMARY**

### **Detroit Department of Transportation Farebox Receipts Handling Process**

#### **Introduction**

This report contains the result of our performance audit of the Detroit Department of Transportation (DDOT) farebox receipts handling process.

#### **Audit Purpose**

This audit was initiated by the Office of the Auditor General to assess the reasonableness of adding ten Money Handler positions, as requested for the 1998-1999 fiscal year.

#### **Background**

The audit focused on the farebox receipts handling process in the DDOT Money Room. The Department contends that inadequate staffing and outdated equipment have caused significant inefficiencies resulting in delayed processing of farebox receipts. DDOT further asserts that the addition of ten Money Handler positions will eliminate the need for excessive overtime, and decrease the cycle time between collection and deposit of farebox receipts.

#### **Summary of Findings**

- DDOT is not depositing cash in a timely manner.
- DDOT's cost to process farebox receipts is excessive.
- DDOT has significant exposure to employee injuries (worker's compensation claims).
- DDOT's employees responsible for revenue monitoring lack formal training and written procedures for properly performing their responsibilities.

#### **Recommendation**

Due to the potential net savings of \$300,000 per year from labor costs; the immediate depositing of cash, which has often accumulated to an estimated \$200,000 to \$400,000; and the potential elimination of workers compensation claims, we recommend the outsourcing of the DDOT farebox receipts handling operation.

In addition, we recommend DDOT develop written procedures for adequately monitoring farebox receipts revenues, and provide DDOT staff formal training on the revenue monitoring system.

## **AUDIT OBJECTIVES, SCOPE, AND METHODOLOGY**

### **Audit Objectives**

Our performance audit of the farebox receipts handling process had the following objectives:

1. To assess the Department's methods of collecting, processing, and depositing farebox receipts
2. To assess the Department's management of the farebox receipts process
3. To identify the "best practices" in farebox receipts processing

### **Audit Scope**

Our audit focused primarily on DDOT's farebox receipts handling process. We also reviewed the DDOT Accounting Division's farebox revenue monitoring system.

### **Audit Methodology**

Our office reviewed the processes in DDOT's Money Room. During our preliminary survey, we interviewed selected Departmental employees and observed each aspect of the farebox receipts handling process to gain an overview and understanding of the Money Room operation and the related problems and concerns. We also contacted other transit agencies, vendors specializing in farebox equipment, and local bonded companies that provide coin and currency processing services.

## **BACKGROUND**

In September 1992, DDOT changed its fare policy to begin accepting dollar bills for the convenience of its customers. Prior to this date, DDOT fare policy was to only accept coins, tickets or passes. Since the implementation of the new fare policy DDOT has been late in depositing currency by as many as 14 days and has incurred excessive overtime costs to process currency.

The processing of currency is a labor intensive process requiring money handling personnel to sort tickets, unfold and straighten dollars, stack, count (utilizing a currency counting machine) and strap dollars. DDOT requires at least eight persons working six hours each to process the average daily currency of \$52,000 collected in fareboxes. DDOT collected, processed, and deposited \$22.2 million in coins and currency in fiscal year 1997-1998. This consisted of \$8.3 million in coins and \$13.9 million in currency.

The fiscal year 1998-1999 projected labor costs are \$653,000 including \$200,000 in overtime, and excluding Workers' Compensation costs to four employees. By comparison, one cash processing vendor quoted an annual price of \$390,780 to provide the farebox receipts handling operations for DDOT.

Prior to June 30, 1991, DDOT had 21 Money Handler budgeted positions including a Supervising Money Handler. The fiscal year 1991-1992 budget reduced the number of Money Handler positions to 14. The reduction in money handling personnel further diminished DDOT's capability to make timely deposits. As a solution for DDOT's currency processing problems, the number of Money Handler positions was increased by 10 (from 14 to 24 positions) in the fiscal year 1998-1999 budget.

Money Handlers are required to have a commercial driver's license to operate the money truck, a permit to carry a concealed weapon, and a hi-lo operator's license. Also, Money Handlers are required to be armed when picking-up and depositing cash. The duties and responsibilities of Money Handlers include the following:

- Collecting Farebox Receipts
- Processing Coin
- Sorting Currency
- Counting Currency
- Depositing Coin and Currency
- Counting Bus Tickets
- Sorting Foreign Coin
- Stacking ripped dollars
- Processing and Delivering Payroll Checks



## **DDOT FAREBOX RECEIPT PROCESSING**

DDOT begins processing of farebox receipts when the passengers deposit their fare in the electronic registering farebox on the bus. Coins fall through the farebox into a container known as the cashbox. Currency and tickets move into a separate section of the cashbox. The farebox electronically records and stores the amount of the fare, type of fare (coin, currency, ticket and pass) and the rider category (adult, senior, student, handicapped, child, transfer etc.). Buses, at the end of their shift, are driven to the terminal boxhouse where the farebox is probed by a boxhouse employee using a device that registers the data (currency and coin receipts, tickets, number of passengers by category and in total, cash box number, bus number, driver number, etc.) into the DDOT farebox revenue monitoring system. The boxhouse employee removes the cashbox and dumps it into a large bin that is not accessible to the employee. The coin goes into one separate section of the bin and the currency and tickets into another section. The bin is also connected to the revenue monitoring system and the date and time the cashbox is dumped into it is recorded. The boxhouse employee returns the emptied cashbox to the bus. This process is repeated for every bus that is in service.

The next day, three Money Handlers, using an armored truck, replace the filled bins from each boxhouse with empty bins, and return the filled bins to the money room. The date and time of the removal of the bins are recorded in the revenue monitoring system. The bins are unloaded in the money room and secured in the vault. When money room personnel are ready to process the cash in the bins they dump the coin into a large coin holding receptacle, and the currency and tickets are dumped into a bag. The coin is processed fairly quickly (within three hours) using a coin sorting machine. The currency and tickets are dumped onto a table where Money Handlers separate tickets from dollars and straighten out dollars that are folded. The dollars are then stacked in receptacles. The stacked dollars are then placed in a currency counter. Once dollars are counted they are strapped.

The processing of dollars, not including currency counting and strapping, is at a rate of approximately \$1,200 per hour per Money Handler, and may take over 43 person hours to process an average day's currency receipts of \$52,000.

Once the day's receipts are processed, they are recorded; and a cash receipts voucher is prepared and submitted to the City Treasurer. Money Handlers deposit the receipts in the bank. The Cashier's Division prepares a report on the actual coin and currency processed and deposited for each day for each terminal and submits the report to the Senior Accountant in the Accounting Division responsible for monitoring revenue. The Accountant records this data for each terminal into a spreadsheet. The Accountant also records the receipts reported by the revenue monitoring system for that day's receipts for each terminal and compares them to the actual receipts reported by the Cashier's Division. The Accountant also records the variances between actual and reported collections. The Accountant prepares monthly reports comparing actual and reported collections. A Principal Accountant in the Accounting Division reconciles the DDOT bank statement to ensure all deposits have been received by the bank.

## **BENCHMARKING**

We contacted several major cities to determine whether a "best practices" process exists, and whether the farebox receipts process utilized by DDOT is consistent with transit agencies in other cities. The cities were selected based upon size and population comparable to Detroit. The cities contacted include Atlanta, Georgia; Boston, Massachusetts; Buffalo, New York; Cleveland, Ohio; Dallas, Texas; Indianapolis, Indiana; Milwaukee, Wisconsin; Philadelphia, Pennsylvania; Phoenix, Arizona; San Antonio, Texas; San Diego, California; and Orange County, California.

All of the transit agencies contacted, and DDOT use GFI (General Farebox Incorporated) Genfare farebox equipment. All agencies accept dollar bills for bus fares which range from \$.60 in Boston to \$1.75 in San Diego. Nine of twelve agencies process farebox receipts on site, similar to DDOT. Several of the agencies (Atlanta, Dallas and Philadelphia) have full-time or part-time personnel whose sole responsibility is sorting dollar bills. Three transit agencies, Cleveland, Phoenix and San Diego, use outside contractors to facilitate their entire farebox receipts process. The Orange County transit agency contracts out approximately half of its farebox receipts processing. Dallas (DART) also contracts out a portion of its cash processing operations.

Although several agencies process farebox receipts in the same manner as DDOT, the following process management initiatives were either being implemented or considered by individual agencies to improve productivity.

### **Equipment Upgrade**

Some of the agencies contacted are considering replacing their current registering farebox systems with recently developed validating farebox systems. The validating farebox systems, with improved reporting and revenue tracking software, are currently being tested in Oklahoma and California. Buffalo, Dallas and Orange County are considering the Agent Systems farebox; Atlanta is considering the new GFI farebox. The Agent Systems farebox stacks currency and eliminates the need for sorting. However, we were unable to cost justify the acquisition of a new system for DDOT.

### **Contracting**

Of the agencies contacted, forty-two percent contract all or part of the cash handling process involving farebox receipts. The agencies cite cost savings related to capital equipment, human resources, workers' compensation, and other liability issues as significant factors in their decision to use outside contractors.

**Dollar Processing Quotas**

To facilitate timely deposits of farebox receipts, Atlanta, Buffalo, and Dallas transit agencies have required hourly quotas for sorting dollar bills.

<u>City</u>	<u>Hourly Dollar Processing Quota</u>
Atlanta (MARTA)	\$2,100
Buffalo (NFTA)	\$2,000
Dallas (DART)	\$1,600 - \$2,000

Quotas are listed in job descriptions, monitored by management, and strictly enforced. Currently, DDOT does not have an established quota system for sorting dollar bills. A department representative stated the average dollars sorted per hour at DDOT is approximately \$1,200.

## **FINDINGS**

### **Finding No. 1: DDOT is not depositing cash in a timely manner.**

The DDOT is not depositing farebox receipts from bus passengers, specifically currency, in the bank within 48 hours of receipt. As a result, excessive cash is stored at the Department increasing risk and reducing the City's return on assets. For example, during at least one period in 1998, the Department accumulated in excess of eight days cash receipts, estimated at approximately \$400,000.

City of Detroit Finance Directive #20 requires that cash receipts be deposited in the bank within 48 hours after receipt. Good accounting practices require that strong internal controls be in place for cash including timely deposit of receipts and monitoring of revenue collections to ensure that all receipts due are properly collected and deposited.

During our audit, the delay between the date of farebox receipts collected and the date of deposit exceeded four days. The Department averages \$52,000 per day in farebox receipts and often holds over \$200,000 in storage in its money room on any given day. The Department cites that inadequate staffing and outdated equipment prohibit the timely processing and depositing of farebox receipts. The Department further states that low staffing levels are due to employee turnover, unscheduled leave, and Workers Compensation issues. Consequently, the Department must maintain and store excessive amounts of unprocessed cash collections, and incur overtime to keep from falling further behind.

The Department budgeted an additional ten Money Handler positions in the previous fiscal year 1998-1999 budget. As of the date of this report, these positions have not been filled. Filling some of these positions would eliminate the delay between collection and deposit and would eliminate the need for overtime to process cash collections. However, there is no need to fill all of these positions.

### **Finding No. 2: DDOT's cost to process farebox receipts is excessive.**

Processing of currency is very labor intensive and is generally performed by unskilled workers. Money Handlers, however, are paid an average of over \$12 an hour with liberal fringe benefits to perform this work.

We contacted twelve other transit agencies in the country and found that many have the same problems with processing currency and are outsourcing or would like to outsource their farebox receipt processing operations. The Cleveland RTA, San Diego Transit, Phoenix, Dallas and Orange County (California) have outsourced part or all of their cash processing and depositing operations. A representative of the Cleveland RTA stated that they realized significant cost savings on labor, capital equipment and security. Also, the Cleveland RTA eliminated a number of safety issues including the responsibility for arming employees, and for workers being injured from handling the cash and equipment.

Contracting the processing and depositing of cash receipts operations of the DDOT's Cashiers Division would provide the Department with significant cost savings. The estimated labor cost in fiscal year 1998-1999 is estimated to be \$653,000 including \$200,000 in overtime but excluding the workers compensation costs being paid to several employees. A cash-processing vendor quoted an annual price of \$390,780 to provide farebox receipt processing for the DDOT's Cashiers Division.

None of the cities that we contacted, which performed the process in-house, had data that we could utilize for comparing total cost of the operations. However, all of the cities that outsourced the process had firm cost data. Exhibit I summarizes major comparisons between DDOT and comparable cities.

**Finding No. 3: DDOT has significant exposure to employee injuries (workers' compensation claims).**

During our audit, the DDOT had one Supervising Money Handler, two Senior Money Handlers, three Intermediate Money Handlers and four Money Handlers for a total of ten persons reporting for duty. Fourteen (14) of the positions were filled out of the twenty-four (24) budgeted. However, due to work related injuries four (4) employees were on workers' compensation. Employees handling heavy bags of coin and other heavy cash handling equipment are susceptible to back injuries and employees handling currency processing are prone to Carpal Tunnel Syndrome.

As a result, the Department constantly loses personnel for long periods without replacement while still incurring their labor costs (workers compensation payments), thus creating the need for the remaining staff to work overtime, resulting in more costs.

**Finding No. 4: DDOT's employees responsible for revenue monitoring lack formal training and written procedures for properly performing their responsibilities.**

The farebox revenue monitoring system software and the Compaq 386 personal computer utilized by the Senior Accountant have been in place since 1991 and are antiquated. The Department is currently requisitioning upgrades in system software and hardware. The upgrades will provide the technological capability required, which include magnetic card readers, and coin-and-currency validation mechanisms, which the Department is currently considering.

The Senior Accountant responsible for monitoring the farebox receipts has not been trained, nor has he received guidance on how to use the data generated by this system. The Accounting Division had no written procedures on how to use the system to monitor the farebox receipts.

A properly trained farebox revenue monitoring analyst can use the revenue monitoring system to spot improprieties such as employee theft, counterfeiting of tickets, and failure of drivers to properly collect and report fares. Furthermore, the system gives the analyst the potential to identify causes of declining revenue and ridership. An effective farebox revenue monitoring system is essential to ensuring all farebox receipts are collected and accounted for. An ineffective system could result in loss of revenues to theft and inefficient collection operations (e.g., farebox breakdowns).

Whether or not the Department decides to outsource the farebox receipts handling process, it is essential that the farebox revenue monitoring system be properly functioning with updated equipment and personnel fully trained and knowledgeable of the system to ensure that farebox receipts are properly processed.

Exhibit II summarizes the Department's money handling requirements.

## **RECOMMENDATION**

As a result of our review of DDOT's farebox revenue collection process, including benchmarking with other cities, we have concluded that the City is paying in excess of \$300,000 per year more than required for this process due to the following conditions:

- delays in processing cash
- inefficient processing of cash
- excessively high percentage of employees on workers' compensation
- high cost per dollar processed
- inadequate training for the individuals assigned to monitor the process
- no quotas or incentives to increase productivity

To eliminate untimely deposits, security, staffing, and workers' compensation issues and the resulting costs, as well as to eliminate the outlay for new cash handling equipment, we recommend that the Department outsource the farebox cash receipts processing and depositing operations in its Cashiers Division to a reputable vendor.

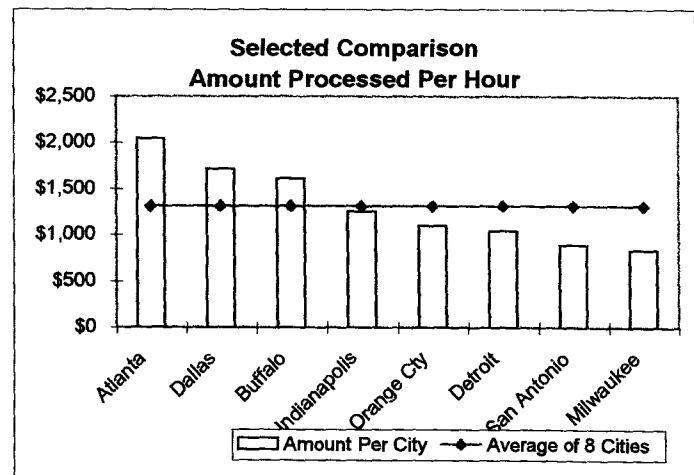
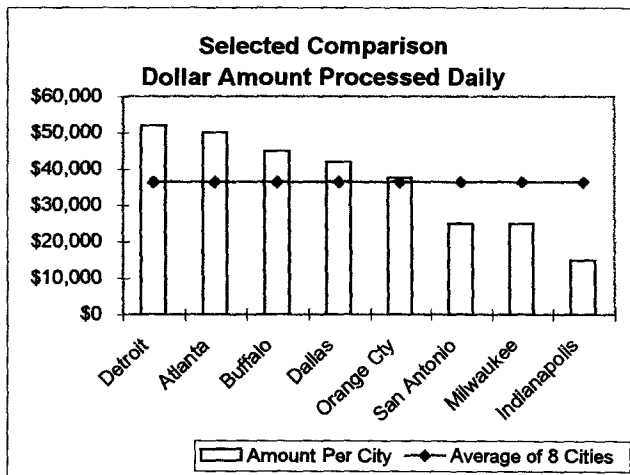
Also, we recommend that the Accounting staff responsible for the farebox revenue monitoring system receive formal training to gain a thorough understanding of the system to enable them to perform their duties in a competent manner.

Further, the Department needs to produce written procedures to guide employees responsible for the farebox revenue monitoring system.

Finally, if the City continues to process farebox receipts in-house, the Department should institute the use of quotas to increase the productivity of the Money Handlers.

## Farebox Collection Receipts Benchmarks from Selected Transit Agencies

Location	In-House or Contract	Processed Daily	Daily No. of Hours	Processed Per Hour
Detroit	In-House	\$52,000	48	\$1,042
Atlanta	In-House	\$50,000	24.5	\$2,042
Buffalo	In-House	\$45,000	28	\$1,607
Dallas	In-House	\$42,000	24.5	\$1,714
Orange County	In-House	\$37,350	34	\$1,100
Milwaukee	In-House	\$25,000	24-30	\$833
San Antonio	In-House	\$25,000	24-28	\$893
Indianapolis	In-House	\$15,000	12	\$1,250
Boston	In-House	\$5,000	-	-
Cleveland	Contract	N/A	N/A	N/A
Phoenix	Contract	N/A	N/A	N/A
San Diego	Contract	N/A	N/A	N/A



**Summary:**

- \* Cleveland, Phoenix and San Diego Contract the Farebox Count to an outside firm.
- \* Atlanta, Buffalo and Dallas have similar quantity and process more cash per hour.
- \* Selected Comparison City Averages are: \$36,438 for Processed Daily and \$1,310 for Per Hour Processing.

**Exhibit II**

**Schedule 1 – Number of Personnel Required to Process DDOT Farebox Receipts**

<u>Responsibility</u>	<u>Daily Hours Required</u>
Collecting Farebox Receipts	12
Processing Coin	6
Sorting Currency	43
Counting & Strapping Currency	4
Depositing Coin and Currency	4
Supervising Money Handler	6
Other	<u>12</u>
Total Person Hours Required Daily	<u>87</u>
Total Number of Money Handler Positions required based on 87 total hours required divided by 6 hours per day*	<u>15</u>
*8 hours less lunch, breaks, preparation, and cleanup	

**Schedule 2 – Comparison of the Number of Required Personnel, Budgeted Positions and Actual Personnel Working for DDOT during the audit**

	<u>Required Positions</u>	<u>Budgeted Positions</u>	<u>Actual Working</u>
Money Handlers	15	24	10

**Schedule 3 – Breakdown of 24 DDOT Budgeted Money Handler Positions during the audit**

	<u>Number</u>
Actual Personnel Working	10
Unfilled Budgeted Positions	10
Personnel on Workers Compensation	<u>4</u>
Total Budgeted Positions	<u>24</u>